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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,229	07/12/2004	Kenji Yamamoto	SON-2875	3803

7590 04/06/2006  
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EXAMINER

DUDEK, JAMES A

ART UNIT PAPER NUMBER

2871

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/501,229

Applicant(s)

YAMAMOTO ET AL.

Examiner

James A. Dudek

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.                                                |

Art Unit: 2871

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US005416757A (757) in view of 4850681 (681).

Per claims 1 and 6, 757 teaches a liquid crystal device characterized by including: a liquid crystal layer which controls a phase distribution of transmitted light [78]; a pair of substrates which sandwich and seal said liquid crystal layer therebetween [70,72]; and a pair of electrodes which are respectively disposed at inner sides of said substrates to apply a predetermined voltage to said liquid crystal layer, and characterized in that: an uneven portion for giving a distribution to a thickness of said liquid crystal layer is provided inwardly of said substrates [see inner surface of substrate 72] and wherein the uneven portion corresponds to a wave front which inherently includes coma and spherical aberration]. 757 lacks a separate layer to form the uneven surface and said pair of electrodes are formed in planar shapes parallel to each other. However, it was well known to form planar electrodes and use a separate layer for form uneven surfaces in order provide an even electric field throughout the cell and simplify

Art Unit: 2871

manufacturing. Furthermore, 681 teaches using a planar electrode and separate layer to form the uneven surface. 681 teaches several manufacturing methods for forming the uneven layer. Thus, 681 teaches manufacturing flexibility by using a separate layer to form the uneven layer instead of making the substrate uneven. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention.

Per claim 2, 757 in view of 681 teaches a liquid crystal device according to claim 1, characterized in that said uneven portion is formed of a molded synthetic resin [the is a product by process limitation and is only given weight if a materially different product is produced] disposed between said liquid crystal layer and said electrodes [see figures].

Per claim 4, 757 in view of 681 teaches a liquid crystal device according to claim 1, characterized in that said uneven portion is formed of a dielectric layer deposited on a liquid-crystal-side surface of said electrodes [the uneven layer is a dielectric resin].

Per claim 5, 757 in view of 681 teaches liquid crystal device according to claim 1, characterized in that said uneven portion is provided on only one of said pair of substrates [see figures].

Per claim 7, 757 in view of 681 teaches a manufacturing method for a liquid crystal device which includes: a liquid crystal layer which controls a phase distribution of transmitted light; a pair of substrates which sandwich and seal said liquid crystal layer therebetween; and a pair of electrodes which are respectively disposed at inner sides of said substrates to apply a predetermined voltage to said liquid crystal layer, said method characterized by comprising: a step of providing an uneven portion for giving a distribution to a thickness of said liquid crystal layer inwardly of said substrates; and a step of forming said pair of electrodes into planar shapes parallel to each other [see the figures, the electrode are on the surfaces the substrates and each plane is parallel to the other plane].

Per claim 8, 757 in view of 681 a manufacturing method for said liquid crystal device according to claim 7, characterized in that in said step of providing said uneven portion, a molded synthetic resin having said uneven portion is provided between said liquid crystal layer and said electrodes by a shape transfer method using a mold [see column 7, lines 21-28].

Per claims 3 and 9, 757 in view of 681 teaches a liquid crystal device according to claim 2, characterized in that said molded synthetic resin is made of an ultraviolet-curable resin.

Art Unit: 2871

Although not taught it was well known to use UV curable resin to use light instead of heat to cure the resin and not subject the cell to high heat. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the well known uv curable resin with 681.

Per claim 10, 757 in view of 681 a manufacturing method for said liquid crystal device according to claim 7, characterized in that in said step of providing said uneven portion, a dielectric layer is provided on a liquid-crystal-side surface of said electrodes by patterning using a photomask. The method is an obvious variation of mold injection. Furthermore, it was well known to use photomask patterning to form dielectric layer for manufacturing with precision. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Response to Arguments***

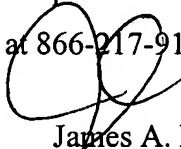
Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2871

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Dudek whose telephone number is 571-272-2290. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



James A. Dudek  
Primary Examiner  
Art Unit 2871